Pranjal Sahu

Contact Information

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Interests

Machine Learning, Computer Vision, Medical Imaging.

Education

Ph.D. in Computer Science, Stony Brook University, 2021

Thesis: Novel Machine-Learning-Centric Data Synthesis Algorithms and Analysis Techniques for Medical Imaging. Advisor: Dr. H. Qin

Indian Institute of Technology Kharagpur

B.Tech.(Hons) in Computer Science and Engineering, 2013

Skills

Python, C++, C, Matlab, Pytorch, Keras, Tensorflow, OpenCV, Numpy, Sklearn, Android Development, Ruby on Rails, PostgreSQL, Dask, Spark, Git

Work Experience

Siemens Healthineers, Senior Deep Learning Scientist - Medical Image Analysis, Princeton, NJ, USA, (February 2023-current)
Deep Learning for abnormality detection in Chest X-Rays.

Kitware, Senior R&D Engineer, Carrboro, NC, USA. (June 2021-February 2023)
Deep learning applications in medical imaging ex. volume segmentation (Monai), point-set registration (ITK, VTK), Dask support for ITK data structures like meshes, images.

Internships

Siemens Healthineers, Malvern, PA. (2020)
Segmentation of Lung CT in presence of severe pathologies. Improved recall of Tumor voxels from 0.56 to 0.87 and published the work in J-BHI journal.

Siemens Healthineers, Malvern, PA. (2019)
Large lung nodule detection in Siemens Syngo CT CAD.

Brookhaven National Laboratory, Computational Science Initiative (2017)
Autonomous Infrastructure for Transition Prediction.

Selected Publications

P. Sahu, V. S. Kumar, H. Qin. *Stabilized Semi-Supervised Training for COVID Lesion Segmentation,* **BMVC**, 2021

P. Sahu, H. Huang, W. Zhao, H. Qin. *Interactive Smoothing Parameter Optimization in DBT Reconstruction using Deep learning,* **MICCAI**, 2021

P. Sahu, Y. Zhao, P. Bhatia, L. Bogoni, A. Jerebko, H. Qin. *Structure Correction for Robust Volume Segmentation in Presence of Tumors,* IEEE Journal of Biomedical and Health Informatics, **J-BHI**, 2020

P. Sahu, D. Yu, M. Dasari, F. Hou and H. Qin. *A Lightweight Multi-section CNN for Lung Nodule Classification and Malignancy Estimation,* IEEE Journal of Biomedical and Health Informatics, **J-BHI**, 2018.

P. Sahu, D. Yu and H. Qin. *Apply lightweight deep learning on internet of things for low-cost and easy-to-access skin cancer detection,*, **SPIE**, 2018 **(Best Demo Award)**.

Honors and Awards

2018	Best Demo Award in SPIE Medical Imaging Conference
2016	Computer Science Chairman Fellowship, Stony Brook University
2005	Represented home state in National Children Science Congress

Invited Talk

Deep Learning applications in Medical Imaging, at Bell labs, Murray Hill (2019).

Other Publications

X. Duan, **P. Sahu**, et. al, *Deep-learning convolutional neural network-based scatter correction for contrast enhanced digital breast tomosynthesis in both cranio-caudal and mediolateral-oblique views*, **Journal of Medical Imaging (JMI)**, 2023.

X. Duan, **P. Sahu**, H. Huang, W. Zhao. *Scatter correction with deep learning approach for contrast enhanced digital breast tomosynthesis (CEDBT) in both cranio-caudal (CC) view and mediolateral oblique (MLO) view*, **IWBI** 2020 **(Oral)**.

P. Sahu, H. Huang, W. Zhao, and H. Qin. *Using virtual digital breast tomosynthesis for de-noising of low-dose projection images,* International Symopsium on Biomedical Imaging, **ISBI** 2019.

N. Konz, et. al, *A Competition, Benchmark, Code, and Data for Using Artificial Intelligence to Detect Lesions in Digital Breast Tomosynthesis*, **JAMA Network Open**, 2023.

P. Sahu, Jared Vicory, et. al, *Wavelet Guided 3D Deep Model to improve Dental Microfracture Detection*, **MICCAI**, AMAI Workshop, 2022.

P. Sahu, Thomas Hastings Greer, et. al, *Reproducible Workflow for Visualization and Analysis of OsteoArthritis Abnormality Progression*, **QMSKI**, 2022.

P. Sahu, S. Gerber, Q. Zhao, T. Nguyen, M. Mccormick, B. Paniagua and J. Vicory. *Thin shell demons for dental scan registration*, **SPIE**, 2022.

J. Vicory, **P. Sahu**, H. Wee, H. Nam, A. Chopra, S. Reid, G. Lewis, S. Arikatla. *Automated fractured femur segmentation using CNN*, **SPIE**, 2022.

C. Zhan, M. Ghaderibaneh, **P. Sahu**, H. Gupta. *DeepMTL Pro: Deep Learning Based Multiple Transmitter Localization and Power Estimation*, **Pervasive and Mobile Computing**, 2022.

M. Dasari, A. Bhattacharya, S. Vargas, **P. Sahu**, A. Balasubramanian, S. Das. *Streaming 360 degree Videos using Super-resolution*, IEEE **INFOCOM** 2020.

Talks

Lightweight Deep Learning on Internet of things at SPIE, Houston (2018).

Wavelet Guided 3D Deep Model to improve Dental Microfracture Detection at MICCAI AMAI Workshop, Singapore, (2022).

Reviewer

- ❑ MICCAI
- ❑ Journal of Medical Imaging (JMI)
- ❑ Ultrasonics Journal
- ❑ Journal of Biomedical and Health Informatics (JBHI)
- ❑ Medical Physics
- ❑ Journal Of Computational Science
- ❑ Nature Scientific Reports
- ❑ Signal, Image and Video Processing

Service

Mentored Rutwik Palaskar (MIT ADT University, India) under the mentorship program at Machine Learning for Health (ML4H) workshop at NeurIPS 2020 on Oral Cancer detection work using pathology images.

Graduate Coursework

- ❑ Computer Graphics
- ❑ Computer Vision
- ❑ Convex Optimization
- ❑ Artificial Intelligence
- ❑ Analysis of Algorithms
- ❑ Computer Networks

Extra curriculars

- ❑ Silver medal in Inter Hall Thermocol and clay modelling at IIT Kharagpur
- ❑ Member of Azad Hall of Residence Fine Arts team at IIT Kharagpur

References

Available on Request.